



Aegis Environmental, Inc.
(804) 378-6015
(804) 379-2389 (fax)
www.aegisenv.com

August 17, 2015

Mr. Scott Haley
DEQ-PRO
4949-A Cox Road
Glen Allen, Virginia 23060

RECEIVED PRO
AUG 18 2015

RE: VPA Permit No. VPA00583 Renewal Application, Bear Island Paper WB LLC

Dear Mr. Haley:

Aegis Environmental, Inc. is submitting this renewal application on behalf of Bear Island Paper WB, L.L.C. for the facility's Virginia Pollution Abatement (VPA) permit. This permit regulates the surface storage of wastewater in a 15 million gallon "Emergency Basin" that is used to temporarily store liquids intended for the on-site wastewater treatment plant. Two other lined basins with volumes of 5 million gallons and 25 million gallons are located nearby; however, these are used to hold treated water prior to discharging under the facility's VPDES permit, not wastewater. Form A and Form C are attached along with supporting diagrams. Based on conversations with you, we have not completed Forms D-V or D-VI because Bear Island Paper is not seeking a land application or bio-solids disposal permit.

The Emergency Basin was constructed of earthen materials in 1977, and was emptied and lined with a synthetic geomembrane in 1995. One upgradient groundwater monitoring well (MW-2) and two downgradient groundwater monitoring wells (MW-15, MW-25) have been tested quarterly since 1990. Since the installation of the synthetic liner, impacts to groundwater in the vicinity of this basin have declined substantially. All parameters currently monitored have declined, and all analyzed metals have returned to background levels:

- Chromium has not been detected in a downgradient well above background levels since Dec 2010,
- Cadmium has not been detected in groundwater since December 2005,
- Lead has not been detected in a downgradient well above background levels since March 2004, and
- Zinc has not been detected in a downgradient well above background levels since July 2002.

Based on these declining groundwater analytical results, Bear Island Paper requests that VDEQ consider removing metals from the groundwater monitoring program, and reducing the sampling frequency for the remaining indicator parameters to semiannual monitoring events.

Please feel free to contact me at (804) 378-6015 if you require additional information or have any questions about this application.

Sincerely,

Mason A. Pritchett, P.G.
Project Geologist

**VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION
FORM A
ALL APPLICANTS**

1. FACILITY OR APPLICANT INFORMATION

Facility Name or Applicant Name:	Bear Island Paper WB, LLC
County/City:	Hanover County, VA
Physical Location/ Address:	10026 Old Ridge Road, Ashland, VA 23005
Mailing Address:	10026 Old Ridge Road, Ashland, VA 23005

2. OWNER INFORMATION

Owner Legal Name:	Bear Island Paper WB, LLC
Mailing Address:	10026 Old Ridge Road
Telephone Number:	804-227-4035
Email address:	swilson@bi.whitebirchpaper.com

3. OWNER CONTACT INFORMATION

Owner Contact Name:	Scott Wilson
Title:	General Manager
Mailing Address:	10026 Old Ridge Road, Ashland, VA 23005
Telephone Number:	804-227-4035
Email address:	swilson@bi.whitebirchpaper.com

4. EXISTING PERMITS: (e.g., VPA, VPDES; VWP, RCRA; UIC; other)

Agency	Permit Type	Permit Number
VDEQ	VPDES (Industrial discharge)	VA0029521
VDEQ	VPDES (Stormwater)	VA0077763
VDEQ	VPA	VPA00583
VDEQ	Title V	VA50840
VDEQ	Industrial Landfill	573

5. NATURE OF BUSINESS: Paper Mill

SIC Code(s):	2621		
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**VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION
FORM A
ALL APPLICANTS**

6. TYPE OF POLLUTANT MANAGEMENT ACTIVITY: *check the appropriate box(es)*

	<u>Proposed</u>	<u>Existing</u>
<u>Animal Feeding Operations</u> (complete Form B)	<input type="checkbox"/>	<input type="checkbox"/>
<u>Industrial Waste</u> (complete Form C & Form D: Parts D-V & D-VI)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>Land Application of Municipal Effluent</u> (complete Form D: Parts D-I & D-III)	<input type="checkbox"/>	<input type="checkbox"/>
<u>Land Application of Biosolids/Sewage Sludge</u> (complete Form D: Parts D-II, D-IV, D-V & D-VI; and Liability Requirements for Transport, Storage and Land Application of Biosolids Form)	<input type="checkbox"/>	<input type="checkbox"/>
<u>Reclamation and/or Distribution of Reclaimed Wastewater</u> (Application Addendum)	<input type="checkbox"/>	<input type="checkbox"/>

7. GENERAL LOCATION MAP:

Provide a general location map which clearly identifies the location of the facility. **Attached Figures 2 and 3**


CONSENT TO RECEIVE AND CERTIFY RECEIPT OF ELECTRONIC MAIL:

The Department of Environmental Quality (DEQ) may deliver permits, certifications and plan approvals to recipients, including applicants or permittees, by electronically certified mail where the recipients notify DEQ of their consent to receive mail electronically (§ 10.1-1183). Check only one of the following to consent to or decline receipt of electronic mail from DEQ as follows:

- ☐ Applicant or permittee agrees to receive by electronic mail the permit and any plan approvals associated with the permit that may be issued for the proposed pollutant management activity, and to certify receipt of such electronic mail when requested by the DEQ.
- ☐ Applicant or permittee declines to receive by electronic mail the permit and any plan approvals associated with the permit that may be issued for the proposed pollutant management activity.

8. SIGNATURE AND CERTIFICATION STATEMENT:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. I further certify that I am an authorized signatory as specified in the VPA Permit Regulation (9VAC25-32).

Signature:		Date:	Aug 18 2015
Printed Name:	Scott Wilson		
Title:	General Manager		

VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION

FORM C

INDUSTRIAL WASTE

PART C-I General Information

1 Facility Name: Bear Island Paper WB, LLC

2. Source(s) of Waste

- a. *Provide a narrative which explains your facility operations and how wastes are produced.*

Newsprint is manufactured using thermomechanical pulping and recycled paper pulping.
Wastewater and paper residues are produced from these processes and are transferred
to the on-site wastewater treatment plant. After treatment, dewatered paper residues
are either sold as a byproduct, burned in a boiler, or transferred to the on-site industrial
landfill and water is discharged to the North Anna River under a permitted discharge
with Hanover County. The facility has three HDPE-lined wastewater holding basins:
5MG, 15MG, and 25MG. The 5MG and 25MG basins are intended to store treated
wastewater that may be discharged to the North Anna River, although this is rarely done.
The facility's VPDES permit requires the discharge to be diverted to these basins under
dry conditions until River levels increase. The 15MG basin is used as an emergency
holding basin to store Mill wastewater during upset conditions at the Mill or wastewater
treatment plant.

- b. *Attach a line drawing of the facility in block diagram for showing the manufacturing or processing operations and all points where wastes are produced. **Attached Figure 1***

- c. *Explain how sewage from employees is handled (i.e., septic tank/drainfield, sanitary sewer etc.):*

The sewage from employees is collected and pumped to the Hanover
County sewerage system. All sewage piping and pumping is segregated
from process sewers.

d. Operational Parameters

Maximum hours/day of operation:	<u>24</u>
Average hours/day of operation:	<u>24</u>
Days/week of operation:	<u>7</u>
Specific months of operation:	<u>January through December</u>

3. Non-Hazardous Declaration

a. Statement for Plant Operations

Is any part of the manufacturing operations, plant processes or waste treatment facilities at these plant facilities under the purview of the "Virginia Hazardous Waste Management Regulations" or the "Virginia Solid Waste Management Regulations?" X Yes
 No.

If Yes, please provide a brief explanation of the type of permit or requirements that apply.

Bear Island Paper WB, LLC is permitted by the VA DEQ Solid Waste Facility
Permit #573 to serve as an industrial landfill for the exclusive use of Bear Island
Paper WB, LLC. The landfill accepts only non-hazardous wastes from normal plant
operations. Wastes accepted include stabilized sludges containing no free liquids,
ash, papermaking fabrics, office waste, pallets, other wood products, packaging
materials, metals, and discarded process equipment that can not otherwise be
salvaged.

- b. For waste to be land applied, a responsible person, as defined by VR680-14-01, must sign the following statement.

I certify that the waste described in this application is non-hazardous and not regulated under the Resource Conservation and Recovery Act.

(Signature of Owner) Date _____

4. Waste Characterization

- a. *Wastewater - Provide at least one analysis for each parameter. Upon review, additional analyses may be required by DEQ.*

<u>Parameter</u>	<u>Concentration</u>	
Flow to treatment	4.5	MGD
Flow to storage	0.103	MGD
Vol. to treatment		MG
Vol. to storage	37.682 /year	MG
Vol. Land applied	0	MG/year
BOD ₅	5.6	mg/l
COD		mg/l
TOC		mg/l
TSS	15.2	mg/l
Percent Solids		%
pH	7.1	S.U.
Alkalinity as CaCO ₃		mg/l
Nitrogen, (Nitrate)	0.12	mg/l
Nitrogen, (Ammonium)		mg/l
Nitrogen, (Total Kjeldahl)	3.34	mg/l
Phosphorus, (Total)	0.24	mg/l
Potassium, (Total)		mg/l
Sodium		mg/l

- b. *Sludge - Provide at least one analysis for each parameter. Upon review, additional analyses may be required by DEQ.*

<u>Parameter</u>	<u>Concentration*</u>	
Percent Solids		%
Volatile Solids		%
pH		S.U.
Alkalinity as CaCO ₃ **		mg/kg
Nitrogen (Nitrate)		mg/kg
Nitrogen (Ammonium)		mg/kg
Nitrogen (Total Kjeldahl)		mg/kg
Phosphorous (Total)		mg/kg
Potassium (Total)		mg/kg
Lead		mg/kg
Cadmium		mg/kg
Copper		mg/kg
Nickel		mg/kg
Zinc		mg/kg

* Unless otherwise noted, report results on dry weight basis.

** Lime treated sludges (10% or more lime by dry weight) should be analyzed for percent CaCO₃.

- c. Provide a separate waste characterization listing for each wastewater and sludge generated at the facility. Insert "Yes" beside all parameters believed present and provide at least one analysis for each. Insert "No" beside all parameters believed not present. Indicate "NA" for any parameter already addressed in Item 4a. or 4b.

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration</u>
Sodium	_____	_____
Bromide	_____	_____
Total Residual	_____	_____
Chlorine	_____	_____
Fecal Coliform	_____	_____
Fluoride	_____	_____
Oil & Grease	_____	_____
Total	_____	_____
Radioactivity	_____	_____
Total Alpha	_____	_____
Total Beta	_____	_____
Total Radium	_____	_____
Total Radium 226	_____	_____
Sulfate (as SO ₄)	_____	_____
Sulfide (as S)	_____	_____
Sulfite (as SO ₃)	_____	_____
Surfactants	_____	_____
Total Aluminum	_____	_____
Total Barium	_____	_____
Total Boron	_____	_____
Total Cobalt	_____	_____
Total Iron	_____	_____
Total Magnesium	_____	_____
Total Molybdenum	_____	_____
Total Manganese	_____	_____
Total Tin	_____	_____
Total Titanium	_____	_____
Total Antimony	_____	_____
Total Arsenic	_____	_____
Total Beryllium	_____	_____
Total Cadmium	_____	_____
Total Chromium	_____	_____
Total Copper	_____	_____
Total Lead	_____	_____
Total Mercury	_____	_____
Total Nickel	_____	_____
Total Selenium	_____	_____
Total Silver	_____	_____
Total Thallium	_____	_____
Total Zinc	_____	_____
Total Cyanide	_____	_____
Total Phenols	_____	_____
Dioxin	_____	_____
Acrolein	_____	_____

*If the analysis is for sludge, report results on dry weight basis.

c. (Continued)

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration</u>
Acrylonitrile	_____	_____
Benzene	_____	_____
Bis(Chloromethyl)Ether	_____	_____
Bromoform	_____	_____
Carbon Tetrachloride	_____	_____
Chlorobenzene	_____	_____
Chlorodibromomethane	_____	_____
Chloroethane	_____	_____
2-Chloroethylvinyl Ether	_____	_____
Chloroform	_____	_____
Dichlorobromomethane	_____	_____
Dichlorodifluoromethane	_____	_____
1,1-Dichloroethane	_____	_____
1,2-Dichloroethane	_____	_____
1,1-Dichloroethylene	_____	_____
1,2-Dichloropropane	_____	_____
1,3-Dichloropropylene	_____	_____
Ethylbenzene	_____	_____
Methyl Bromide	_____	_____
Methyl Chloride	_____	_____
Methylene Chloride	_____	_____
1,1,2,2-Tetrachlorethane	_____	_____
Tetrachloroethylene	_____	_____
Toluene	_____	_____
1,2-TransDichloroethylene1	_____	_____
1,1,-Trichloroethane	_____	_____
1,1,2,-Trichloroethane	_____	_____
Trichloroethylene	_____	_____
Trichlorofluoromethane	_____	_____
Vinyl Chloride	_____	_____
2-Chlorophenol	_____	_____
2,4-Dichlorophenol	_____	_____
2,4-Dimethylphenol	_____	_____
4,6-Dinitro-O-Cresol	_____	_____
2,4-Dinitrophenol	_____	_____
2-Nitrophenol	_____	_____
4-Nitrophenol	_____	_____
P-Chlor-M-Cresol	_____	_____
Pentachlorophenol	_____	_____
Phenol	_____	_____
2,4,6-Trichlorophenol	_____	_____
Acenaphthene	_____	_____
Acenaphtylene	_____	_____
Acenaphtylene	_____	_____
Benzidine	_____	_____
Benzo(a)Athrane	_____	_____
Benzo(a)Pyrene	_____	_____
3,4-Benzofluoranthene	_____	_____
Benzo(ghi) Perylene	_____	_____
Benzo(k)Fluoranthene	_____	_____
Bis(2-Chloroethoxy)Methane	_____	_____
Bis(2-Chloroethyl) Ether	_____	_____
Bis(2-Chloroisopropyl)Ether	_____	_____
Bis(2-Ethylhexyl) Phthalate	_____	_____
4-Bromophenyl Phenyl Ether	_____	_____
Butyl Benzyl Phthalate	_____	_____
4-Chlorophenyl Phenyl Ether	_____	_____
2-Chloronaphthalene	_____	_____
Chrysene	_____	_____
Dibenzo(a,h) Anthracene	_____	_____

c. (Continued)

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration</u>
1,2-Dichlorobenzene	_____	_____
1,3-Dichlorobenzene	_____	_____
1,4-Dichlorobenzene	_____	_____
3,3'-Dichlorobenzidine	_____	_____
Diethyl Phthalate	_____	_____
Dimethyl Phthalate	_____	_____
Di-N-Butyl Phthalate	_____	_____
2,4-Dinitrotoluene	_____	_____
2,6-Dinitrotoluene	_____	_____
Di-N-Octyl Phthalate	_____	_____
1,2-Diphenylhydrazine(as Azobenzene)	_____	_____
Fluoranthene	_____	_____
Fluorene	_____	_____
Hexachlorobenzene	_____	_____
Hexachlorobutadiene	_____	_____
Hexachlorocyclopentadiene	_____	_____
Hexachloroethane	_____	_____
Indeno(1,2,3-cd)Pyrene	_____	_____
Isophorone	_____	_____
Naphthalene	_____	_____
Nitrobenzene	_____	_____
N-Nitrosodimethylamine	_____	_____
N-Nitrosodi-N-Propylamine	_____	_____
N-Nitrosodiphenylamine	_____	_____
Phenanthrene	_____	_____
Pyrene	_____	_____
1,2,4 - Trichlorobenzene	_____	_____
Aldrin	_____	_____
α- BHC	_____	_____
β- BHC	_____	_____
γ- BHC	_____	_____
δ- BHC	_____	_____
Chlordane	_____	_____
4,4'- DDT	_____	_____
4,4'- DDE	_____	_____
4,4'- DDD	_____	_____
Dieldrin	_____	_____
α-Endosulfan	_____	_____
β-Endosulfan	_____	_____
Endosulfan Sulfate	_____	_____
Endrin	_____	_____
Endrin Aldehyde	_____	_____
Heptachlor	_____	_____
Heptachlor Epoxide	_____	_____
PCB - 1242	_____	_____
PCB - 1254	_____	_____
PCB - 1221	_____	_____
PCB - 1232	_____	_____
PCB - 1248	_____	_____
PCB - 1260	_____	_____
PCB - 1016	_____	_____
Toxaphene	_____	_____
Chloromethane	_____	_____
Chlorpyrifos	_____	_____
Demeton	_____	_____
Dichloromethane	_____	_____
(2,4-dichlorophenoxy) acetic acid (2,4-D)	_____	_____
Di-2-Ethylhexyl Phthalate	_____	_____
MBAS	_____	_____

c. (Continued)

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration</u>
Lindane	_____	_____
Hydrogen Sulfide	_____	_____
Silvex	_____	_____
Tributyltin	_____	_____
Kepone	_____	_____
Malathion	_____	_____
Methoxychlor	_____	_____
Mirex	_____	_____
Monochlorobenzene	_____	_____
Parathion	_____	_____

- d. *Provide a separate waste characterization listing for each wastewater and sludge generated at the facility. List any additional parameters believed present in the spaces provided below and provide at least one analysis for each.*

<u>Parameter</u>	<u>Concentration</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

5. Briefly describe the design and provide a line drawing of the waste treatment facility which relates the various components of the treatment system including source(s), treatment unit(s), disposal alternatives, and flow estimates from the various process units.

The facility has three HDPE-lined wastewater holding basins on-site: 5 million gallon, 15 million gallon, and 25 million gallon. The 5MG basin and 25MG basin store treated

wastewater that can not be discharged to the North Anna River due to extreme drought conditions. The 15MG basin is used as an emergency holding basin to store mill

wastewater during upset conditions at the mill or wastewater treatment plant. See Figure 4 for a diagram of wastewater treatment processes. A groundwater monitoring program has been in effect for the basins since at least 1989.

6. Indicate the number and type of waste storage facilities. If existing, indicate the volume; DEQ may require additional information upon review.

No.	Existing (Volume)	Proposed
_____ Earthen Storage Pond	_____	_____
<u>3</u> Storage Pit (HDPE lined)	<u>5, 15, 25 MG - wastewater only, no sludge</u>	_____
_____ Storage Tank	_____	_____
_____ Anaerobic Lagoon	_____	_____
_____ Other _____	_____	_____
_____	_____	_____

7. Have the existing storage/treatment facilities identified in Item 5 and 6 above been previously approved by the Department of Environmental Quality?

Yes X No _____

If yes, provide the date of the approval and proceed to Item 8.

Approval Date: 2/16/06 (Current VPA Permit)

If no, provide information required by Items 9, 10, and 11.

8. Have the previously approved facilities been altered or expanded?

Yes _____ No X

If yes, it will be necessary to provide the information for such facilities, as required by Items 9 & 10, and 11.

If no, proceed to Item 12.

9. Provide conceptual design for the treatment facilities including design approach used. Explain how ground water will be protected. Demonstration should include soil evaluation, geology, hydrology, and topography. The following information must be provided for each proposed facility identified in Item 6 above and for those existing facilities in Items 7 and 8 which have not been either previously approved or were altered:

- Design calculations for volume (ft³) and estimated days of storage*
- Description of lining material and permeability*
- Plan and cross-sectional views*
- Depth to seasonal high water table and separation to permanent water table.*

10. Will the proposed waste storage/treatment facilities be located within the 100 -year flood plain?
_____ Yes _____ No.

If yes, what is the elevation of the 100-year flood plain and elevation of the proposed facilities. Also, how will the waste storage facilities be protected from flooding? (Flood elevation can be obtained from your local county zoning/planning department).

11. Will the proposed or existing storage/treatment facilities receive any storm water runoff?
_____ Yes _____ No.

If yes, provide total area (square feet, acres, etc.) from which runoff will occur and indicate this area on the line drawing (Item 5).

Total area: _____
Dimensions: _____

12. Will any part of the waste generated at your facility be land applied? Yes _____ No X . If yes, Part C-II must be completed.

VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION

FORM C

INDUSTRIAL WASTE

PART C-II Land Application and Waste Handling Procedure

Facility Name: _____

Items 1-12 pertain to the land application of industrial sludge/wastewater at frequent and infrequent rates. The applicant may request a waiver in writing for any of the required information if it is not pertinent to their operation.

1. For each land application site provide a topographic map of sufficient scale (5 foot contour preferred) clearly showing the location of the following features within 0.25 mile of the site. Provide a legend with approximate scale. (See General Instructions for map requirements.)

- a. *Proposed or existing ground water monitoring wells*
- b. *General direction of ground water movement*
- c. *Water wells, abandoned or operating*
- d. *Surface water*
- e. *Springs*
- f. *Public water supply(s)*
- g. *Sink holes*
- h. *Underground and/or surface mines*
- i. *Mine pool (or others) surface water discharge points*
- j. *Mining spoil piles and mine dumps*
- k. *Quarry(s)*
- l. *Sand and gravel pits*
- m. *Gas and oil wells*
- n. *Diversion ditch(s)*
- o. *Agricultural drainage ditch(s)*
- p. *Occupied dwellings, including industrial and commercial establishments*
- q. *Landfills or dumps*
- r. *Other unlined impoundments*
- s. *Septic tanks and drainfields*
- t. *Injection wells*
- u. *Rock outcrops*
- v. *Soil boring or test pits locations*
- w. *Subsurface drainage tile*

2. For each land application site provide a site plan of sufficient detail to clearly show any landscape features which will require buffer zones or may limit land application. Provide a legend and clearly mark the field boundaries and property lines. The following landscape features should be delineated. (See General Instructions for map requirements.)
 - a. *Drainageways*
 - b. *Rock outcrops*
 - c. *Sink holes*
 - d. *Drinking water wells and springs*
 - e. *Monitoring wells*
 - f. *Property lines*
 - g. *Roadways*
 - h. *Occupied dwellings*
 - i. *Slopes (greater than 8% by slope class)*
 - j. *Wet spots*
 - k. *Severe erosion (SCS designation)*
 - l. *Frequently flooded soils (SCS designation)*
 - m. *Surface waters*
3. Provide a complete description of agronomic practices for each crop to be grown, on field-by-field basis including a nutrient management program, soil and/or plant tissue testing, and the coordination of tillage practices, planting and harvesting schedules and timing of land application.
4. Describe all land application methods and any equipment used in the process.
5. Provide a detailed soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.)

Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions should include the following information.

- a. *Soil symbol*
- b. *Soil series, textural phase and slope class*
- c. *Depth to seasonal high water table*
- d. *Depth to bedrock*
- e. *Estimated productivity group (for the proposed crop rotation).*
- f. *Estimated infiltration rate (surface soil)*
- g. *Estimated permeability of most restrictive subsoil layer*

6. Representative soil borings for frequent land application and fixed spray irrigation s, (to no less than 5 ft. or to the water table) are to be conducted for the typifying pedon of each soil series (soil type) and the following data collected and tests performed. All results for infiltration and permeability tests should be enclosed. Provide information on the items below:
 - a. Soil symbol
 - b. Soil series, textural phase and slope class
 - c. Depth to seasonal high water table
 - d. Depth to bedrock
 - e. Estimated productivity group (for the proposed crop rotation).
 - f. Estimated infiltration rate (surface soil)
 - g. Estimated permeability of most restrictive subsoil layer
7. Representative soil samples are to be collected for each major soil type and analyzed for the soil parameters indicated on Page C-II.6. Samples are to be taken at a depth of 0-6 in.
8. Land Area Determination:
 - a. Land area requirements are to be calculated and justified for each of the parameters listed below:

<u>Parameters</u>	<u>Method of Determining Required Area</u>
1. Nitrogen	Crop uptake, immobilization denitrification, leaching
2. Phosphorus	Crop uptake, soil adsorption
3. Potassium	Crop uptake
4. Sulfur	Crop uptake, soil adsorption leaching
5. Salts	Sodium Adsorption Ratio (SAR), leaching
6. Carbon/Nitrogen Ratio	
7. Metals(Ni, Cu, Zn, Pb, Co, Cd or other)	Cumulative loading for site life
8. Anions (As, B, Chlorides)	Leaching, Soil Adsorption
9. Calcium Carbonate Equivalency	Soil pH management
10. Other Parameters (As needed or as requested by DEQ)	

For each parameter and method of assimilation, (i.e. crop uptake, denitrification, immobilization, soil adsorption leaching, etc.), the required land area is to be justified by attaching calculations and appropriate references. Allowances for soil adsorption are to be justified by pertinent soil testing.

Provide calculations describing the nutrient value of the waste as lbs per dry ton or mg/l nitrogen (PAN), phosphorus (P_2O_5), potassium (K_2O), and any liming effects which may occur from land application.

b. Land area requirements for application of industrial wastewater or liquid sludge are to be determined and an annual water balance on a monthly basis developed integrating the following factors:

1. Monthly precipitation
2. Monthly evapotranspiration data
3. Soil percolation rates (from subsurface permeability data)
4. Monthly wastewater loading
5. Monthly storage requirement
6. Monthly storage input/drawdown

9. Does the volume of wastewater generated as determined by the water balance in 8.b. exceed the hydraulic loading rate (inches/acre/year) of the soils? ____ Yes ____ No

If Yes, explain how excess loading will be disposed of:

10. Is the land application site owned by the applicant? ____ Yes ____ No.

If No, answer question 11 and have the land owner complete the authorization form, Page C-II-5.

11. Complete page C -II.5 by providing the name(s), address(es), site locations and signatures of non-applicant land owner on whose property industrial waste will be applied (A separate approval will be required for each additional owner.):

AUTHORIZATION TO LAND APPLY WASTE
(Land Owner must sign and date this approval)

As land owner, I authorize _____ to land apply
wastewater/sludge to my property in accordance with their VPA Form C application. This authorization
will remain in effect until such time as I notify the Department of Environmental Quality in writing that th is
authorization has been withdrawn.

Name: _____

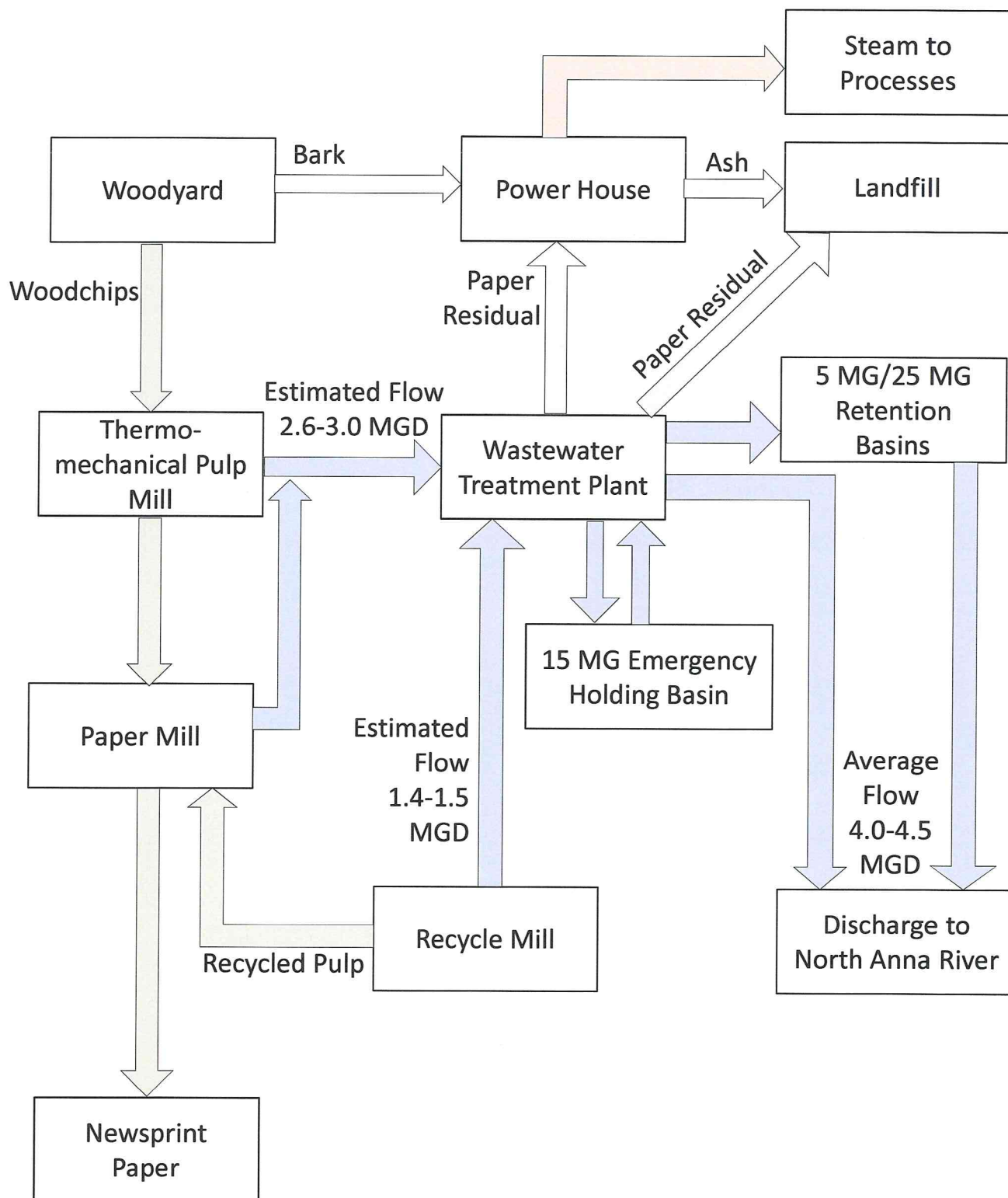
Address: _____

Telephone: _____

Site Location(s) _____

Date: _____

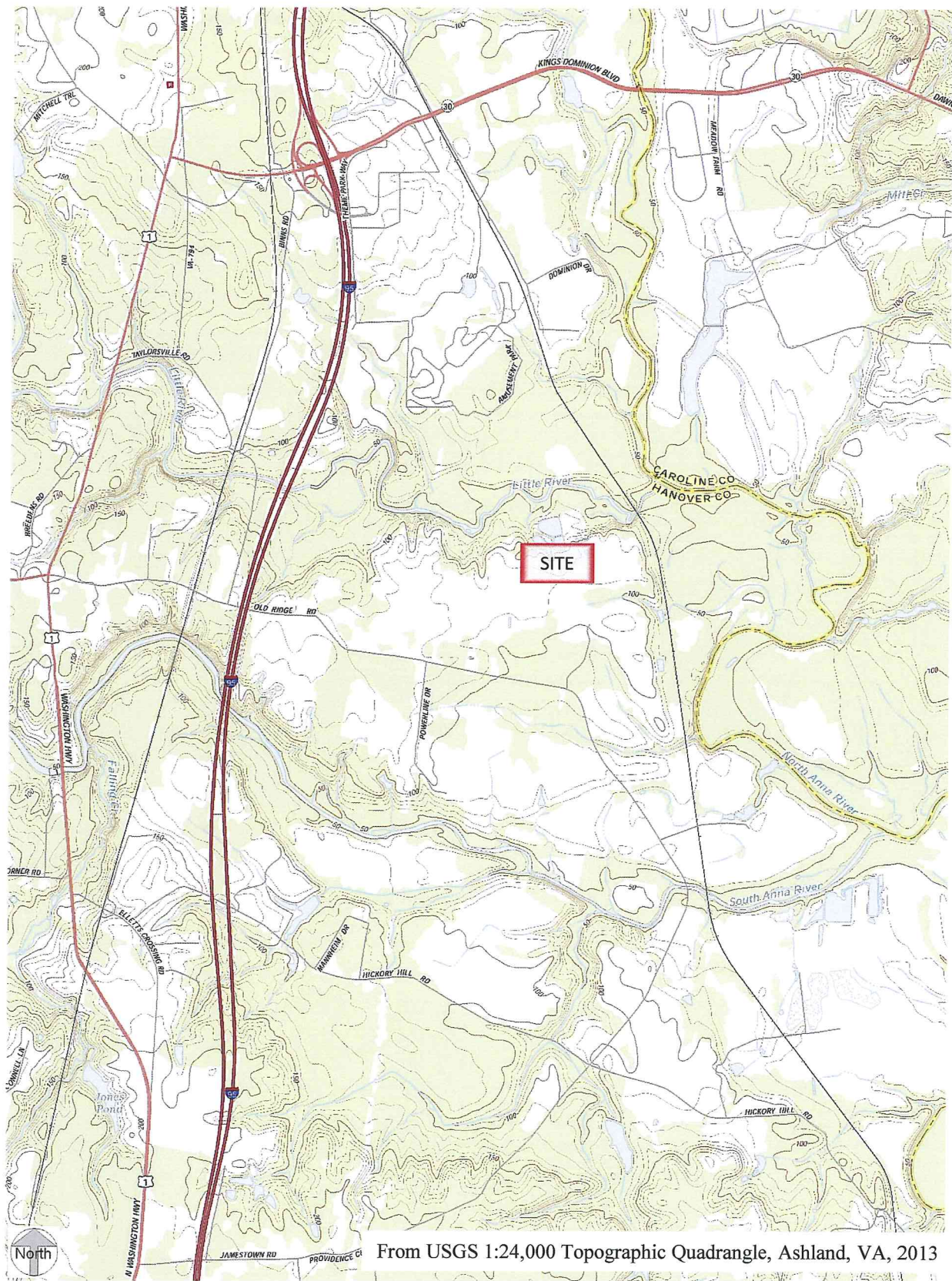
Signature: _____



Process Flow Diagram
Bear Island Paper WB, LLC
 10026 Old Ridge Road
 Ashland, VA 23005

BIP-002

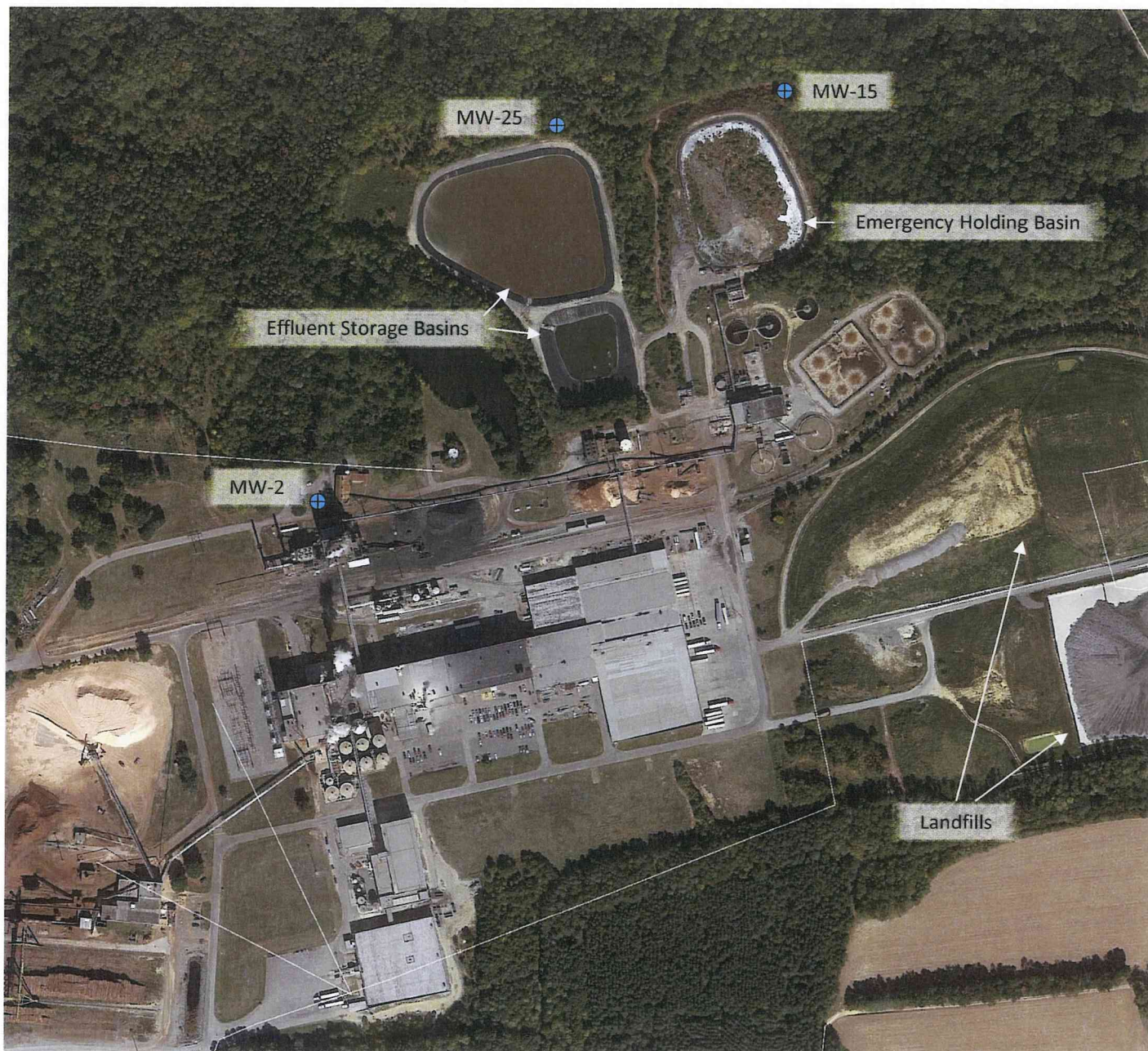
FIGURE 1



Location and Topographic Map
Bear Island Paper WB, LLC
 10026 Old Ridge Road
 Ashland, VA 23005

BIP-002

FIGURE 2



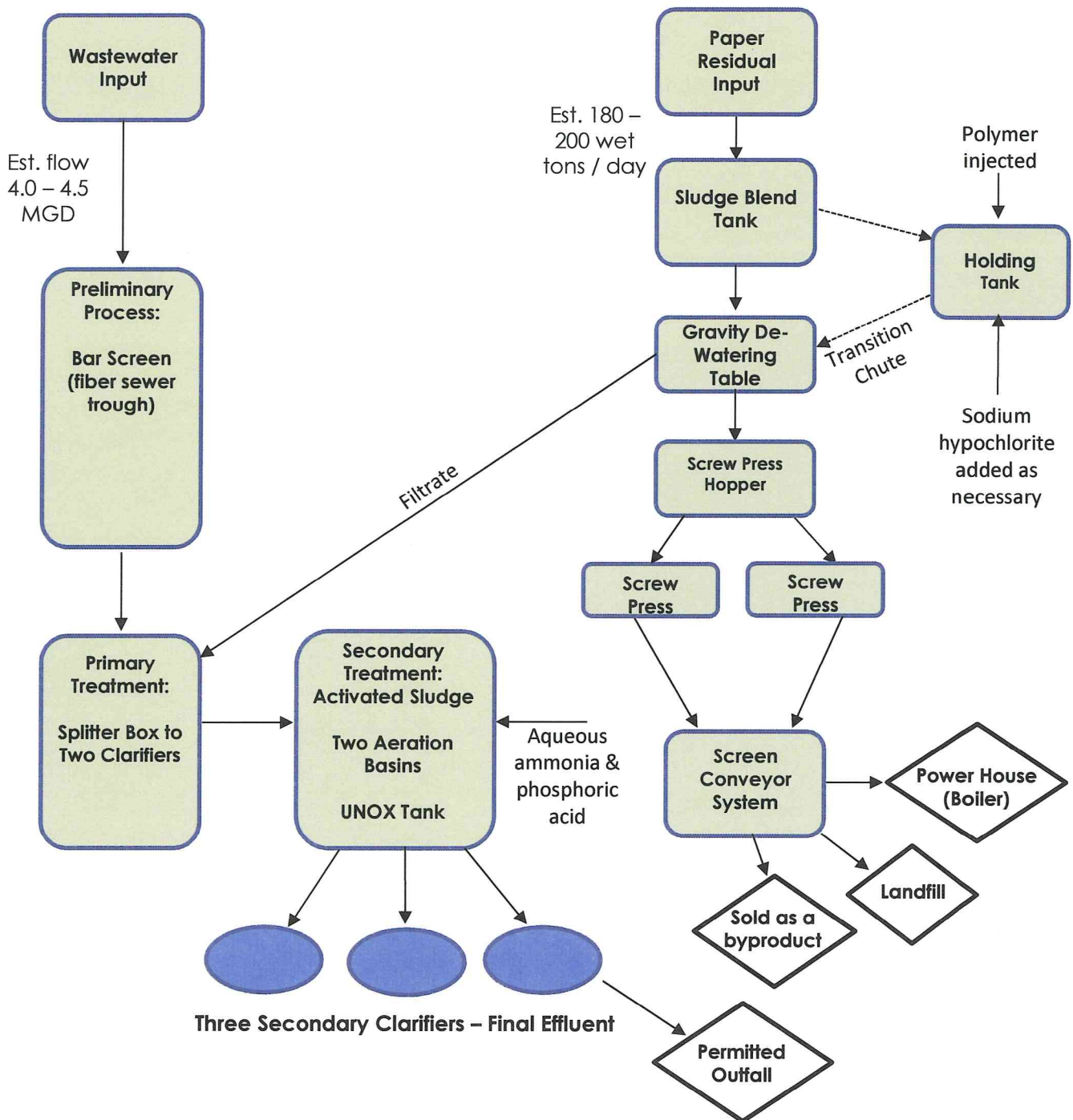
VPA Site Plan
Bear Island Paper WB, LLC
 10026 Old Ridge Road
 Ashland, VA 23005

BIP-002

FIGURE 3

Wastewater Treatment Plant

Paper Residual Handling System



Waste Treatment Flow Diagram
Bear Island Paper WB, LLC
 10026 Old Ridge Road
 Ashland, VA 23005

BIP-002

FIGURE 4